

formations. We believe that this species always hibernates as full grown larva and not in any other manner.

IDENTITY OF *CULEX ABFITCHII* FELT. — This is the form described as "*cantans* 1" by Mr. Knab and myself (Proc. Ent. Soc. Wash., vi, 143, 1904). What Dr. Felt calls *cantans* is a third form, figured as *cantans* by Dr. J. B. Smith and which we had not previously distinguished. It will be found defined in the preceding table. The comparison of European material is now more urgently needed than before.

LARVA OF *MELANOCONION ATRATUS* THEOB. — Mr. Theobald has published a photograph of this larva (Mon. Culic., III, pl. xvi, 1903), but the enlargement is insufficient to bring out any of the distinctive characters. I have received the species from New Orleans, from Dr. Dupree (through Dr. Howard). It belongs in the *territans* group and falls near *melanurus*, but the spines of the comb are in a less regular row than in that species, while the whole body is minutely pilose.

Class I, HEXAPODA.

Order IX, HEMIPTERA.

A LIST OF CERTAIN FAMILIES OF HEMIPTERA OCCURRING WITHIN SEVENTY MILES OF NEW YORK.

By J. R. DE LA TORRE BUENO,

NEW YORK, N. Y.

(Continued from Vol. XII, page 253.)

Family PENTATOMIDÆ.

In this family I follow the classification and nomenclature employed in the most recent American authoritative discussion of the group, "Annotated List of the Pentatomidæ Recorded from America North of Mexico," by Mr. E. P. Van Duzee. (Trans. Am. Ent. Soc., No. 1, Vol. xxx, 1904.)

Subfamily CORIMELÆNINÆ.

Genus *CORIMELÆNA* White.

C. unicolor de Beauvois (= *helopioides* Wolff = *atra* Amyot & Serville).

Jamesburg, N. J., August 5; Newfoundland, N. J., May and July; Staten Id., N. Y., June 12 and 23; West Hebron, N. Y., August; Van Cortlandt Pk., N. Y., September 19; Westfield, N. J., July 7.

This is apparently the most abundant species in this vicinity.

C. nitiduloides Wolff (= *histeroides* Say).

Newfoundland, N. J.

Only one specimen, taken by Mr. Davis. This would seem to be a rare form hereabout.

C. pulicaria Germar.

Mosholu, N. Y., July 8; Jamesburg, N. J., July 5; Lakehurst, N. J., July 12, Staten Id., N. Y., July 20; Westfield, N. J., July 16, 30, August 7.

This is a very common and widespread species, and appears on all lists. Mr. Davis' specimens were originally determined as *Corymelena lateralis*, and so appear in the New Jersey list; but this is a western form. The record for these specimens, therefore, is incorrect.

Subfamily SCUTELLERINÆ.

This subfamily is not represented in Prof. Smith's list.

Genus TETYRA Fabricius.

T. bipunctata Herrich-Schaeffer.

Lakehurst, N. J., April 25 (Davis) May 5 and 28.

This interesting form is found but not frequently at Lakehurst, and is ordinarily taken by beating the pines. It is of interest, as it is a southern insect, and Lakehurst, in the Pine Barrens, is in all probability its extreme northern range.

Genus AULACOSTETHUS Uhler.

A. marmoratus Say.

Lakehurst, N. J., April 30 and September 19 (Davis).

This is of infrequent occurrence.

Genus HOMÆMUS Dallas.

H. æneifrons Say.

Hamilton Co., N. Y. (Davis); Westfield, N. J., July 2.

This also is apparently quite rare.

Genus EURYGASTER Laporte.

E. alternatus Say.

Hewitt, N. J., August; West Hebron, N. J., June and September (Davis).

This seems to be more common and widespread than either of the preceding.

Subfamily GRAPHOSOMINÆ.

Genus PODOPS Laporte.

P. dubius de Beauvois.

New Jersey, March (Davis).

This specimen has in some degree the longer lateral pronotal processes mentioned by Van Duzee. It is the specimen the record of which Prof. Smith credits to Mr. Davis, and was determined by Dr. Ashmead.

P. cinctipes Say.

New Jersey, March 23, 1903.

These specimens were taken under stones by Mr. A. C. Weeks. This is the common form in this locality, if indeed, the other one be actually found here.

Subfamily CYDNINÆ.

Genus CYRTOMENUS Amyot & Serville.

C. mirabilis Perty.

Staten Id., August.

This is the specimen recorded in Prof. Smith's list, and was determined by Dr. Ashmead. According to Van Duzee, this bug is strictly southern.

Genus CYDNUS Fabricius (= *Microporus* Uhler).

C. (Microporus) obliquus Uhler.

Aqueduct, N. Y., September 19 (Davis).

According to Mr. Van Duzee, this insect is southwestern, but nevertheless, the specimen mentioned was taken by Mr. Davis in the Long Island locality named.

Genus PANGÆUS Stal.

P. bilineatus Say.

"N. J." (Davis), March 23.

As Mr. Davis' collecting is limited practically to the area selected, it is fair to assume that he found it within the prescribed limits. The specimen mentioned is the only one I have seen, and was determined by Dr. Ashmead.

Genus AMNESTUS Dallas.

A. spinifrons Say.

Staten Id., N. Y., May and June (Davis).

Recorded in Smith's list, and determined by Dr. Ashmead.

Genus SEHIRUS Amyot & Serville. (= *Canthophorus* Mulsant & Rey).

S. cinctus de Beauvois.

Hamilton Co., N. Y. (Davis).

Subfamily PENTATOMINÆ.

Some of the records, localities and dates in this subfamily are additional to my list of the Pentatomidæ, in Journ. N. Y. Ent. Soc., for December, 1903.

Genus BROCHYMENA Amyot & Serville.

B. arborea Say.

Staten Id., N. Y., August 31, June 11, September; Lakehurst, N. J., May 26, June, September 6.

Not uncommon at Lakehurst, from which locality I have seen a number of specimens, and has been taken occasionally in Staten Id. by Mr. Davis.

B. quadripustulata Fabricius.

Lakehurst, N. J., May 24 and September 4; Staten Id., N. Y., June 30, July 13, and September 10; W. Hebron, N. Y., June.

This has been taken by Mr. Davis on pine, according to the label on one of his specimens, and together with the preceding appears to be the most common form in this vicinity.

B. annulata Fabricius.

Lakehurst, N. J., June 26.

Found rather rarely at Lakehurst, where it is taken by beating the pines.

Genus PERIBALUS Mulsant & Rey.

P. limbolarius Stal.

Lakehurst, N. J., July 16 and September 6; Ramapo, N. Y., May 31; Staten Id., N. Y., May 11 and June 14; Van Cortlandt Park, N. Y., September 12, 1903.

Genus TRICHOPEPLA Stal.

T. semivittata Say.

Ft. Montgomery, N. Y., July 26; Little Falls, N. J., May; Staten Id., N. Y., June 8, August 16, September 26, October 3; Van Cortlandt Pk., N. Y., September 12; Mosholu, N. Y., October 3; Westfield, N. J., August 13, September 3.

This insect is abundant wherever found.

Genus PENTATOMA Olivier.

This genus is mentioned in Smith's List as *Lioderma* Uhler.

P. (Lioderma) saucia Say.

Staten Id., N. Y., April and September.

These captures are by Mr. Davis, who has found it now and then.

P. (Rhytidolomia) senilis Say.

Staten Id., N. Y., April, July, September and October.

This is locally the most abundant of the genus.

P. (Chlorochroa) uhleri Stal.

W. Hebron, N. Y., August.

This is one of Mr. Davis' interesting specimens and was taken by Mr. C. W. Leng. Mr. Van Duzee gives it (l. c.) as occurring in Colorado and the Rocky Mts. Possibly this is its extreme Eastern range.

Genus MORMIDEA Amyot & Serville.

M. lugens Fabricius.

Jamesburg, N. J., July 13; Perth Amboy, N. J., May 31; Ramapo, N. Y., May 31; Staten Id., N. Y., June and August; Westfield, N. J., July 2.

Very common and abundant in this vicinity, from early spring to late fall.

Genus *ÆBALUS* Stal.*O. pugnax* Fabricius.

Anglesea, N. J., July 4 (Dr. E. G. Love).

Genus *EUSCHISTUS* Dallas.

This is by far the best represented and most abundant genus in the district under discussion.

E. fissilis Uhler.

Hewitt, N. J., July; Jamesburg, N. J., July 5 and August 31; Ramapo, N. Y., May 31; Staten Id., N. Y., May 31, June 11, September; W. Hebron, N. Y., August and September; Westfield, N. J., July 30, August 7 and September 3.

E. servus Say.

Jamesburg, N. J., July 5; Staten Id., June and September.

Rare. The identification is by Dr. Ashmead.

E. politus Uhler.

Jamesburg, August 31; Lakehurst, N. J., October 6.

A rather rare insect, apparently, taken by Mr. Davis in the localities mentioned. This appears in Dr. Smith's N. J. List as *Podisus politus*.

E. tristigmus Say.

Forest Pk., L. I., June 27; Ft. Montgomery, N. Y., July 26; Ramapo, N. Y., May 31; Staten Id., N. Y., June 12, October; W. Hebron, N. Y., August and September; Newfoundland, N. J., July and September; Mosholu, N. Y., June 6 and October 1; Westfield, N. J., July 4 and August 7.

This form is common in the grasses in moist or marshy meadows.

E. variolarius de Beauvois.

Jamesburg, N. J., June 22 and July 5; Lakehurst, N. J., June, July 12; Long Island, N. Y., July 29; Mosholu, N. Y., October 3; Newfoundland, N. J., May, Putnam Co., N. Y., September 5; Ramapo, N. Y., May 31, Staten Id., N. Y., June 12 and 26, July 20, August 2, October 10 and 23; W. Hebron, N. Y., August and September; Westfield, N. J., July 4 and August 7.

This species, together with *fissilis*, with which it may be confounded, and with *tristigmus*, are locally the most common and abundant species.

Genus *CÆNUS* Dallas.*C. delius* Say.

Staten Id., N. Y., June 14 and September 2; Singac, N. J., September 1; W. Hebron, N. Y., August and September; Mosholu, N. Y., October 1; Westfield, N. J., July 16 and 30.

Common in the area under discussion.

Genus *HYMENARCYS* Amyot & Serville.*H. nervosa* Say.

Staten Id., June 30 and August 2.

GENUS MINEUS Stal.

M. strigipes Herrich-Schaeffer.

Westfield, N. J., July 4.

Genus COSMOPEPLA Stal.

C. carnifex Fabricius.

Newfoundland, N. J., July 4; W. Hebron, N. Y., June, August and September.

This is a very common species.

Genus MENECLIS Stal.

M. insertus Say.

Sparta, N. J.

This is the specimen recorded by Professor Smith.

Genus THYANTA Stal.

T. custator Fabricius.

Brookville, N. J., July; Lakehurst, N. J., May 1, June 26, July 12, September 14, October 9.

This form is quite common in the pine barrens of New Jersey.

Genus NEZARA Amyot & Serville.

N. pennsylvanica DeGeer.

Jamesburg, N. J., June 22 and July 5; Staten Id., N. Y., February 11.

N. hilaris Say.

Deal, N. J., May; Jamesburg, N. J., August 31; Ft. Montgomery, N. Y. July 26; Staten Id., N. Y., June, July, August 31 and October.

The latter is the more common of the two species locally.

Genus BANASA Stal.

B. calva Say.

Lakehurst, N. J., September 26.

B. dimidiata Say.

Lakehurst, N. J., October 20.

Genus LIOTROPIS Uhler.

L. humeralis Uhler.

Lakehurst, N. J., September 6; Ft. Montgomery, N. Y., July 26.

This is apparently a rather common insect in this vicinity, as it was taken in fair numbers by Mr. Davis on the dates cited.

Subfamily ASOPINÆ.

Genus STIRETRUS Laporte.

S. anchorago Fabricius.

Jamesburg, N. J., July 4, 1890.

This is the only specimen I have ever seen from this locality, and is the one taken by Mr. Davis, which figures in Dr. Smith's N. J. list.

Genus **PODISUS** Herrich-Schaeffer.

P. cynicus Say.

Brookville, N. J., July; Hewitt, N. J., July; Staten Id., N. Y., August.

I have never taken this, and from Mr. Davis' few specimens, would conclude it is not abundant locally. In general, also, these individuals are smaller than examples from the South in my collection.

P. maculiventris Say.

Jamesburg, N. J., July 5 and August 31; Ft. Montgomery, N. Y., July 26; Ramapo, N. Y., May 31; Staten Id., N. Y., March, June 12 and 27, August 2 October 26; W. Hebron, N. Y., August and September.

This is the most common member of the genus in this vicinity.

P. modestus Dallas.

Ft. Montgomery, N. Y., May 31.

This neat little species is apparently quite rare within my limits, the specimen noted being taken by Mr. Davis.

Subfamily **ACANTHOSOMINÆ**.

Genus **ACANTHOSOMA** Curtis.

A. lateralis Say.

Staten Id., N. Y., April 19.

Rarely found. This specimen was taken by Mr. Davis.

Family **COREIDÆ**.

This important family is well represented in some of its species, which are very abundant in this district.

Genus **CHARIESTERUS** Laporte.

C. antennator Fabricius.

Jamesburg, N. J., July 5; Lakehurst, N. J., July 29.

Apparently uncommon. I have taken none, and Mr. Davis but two, in some years' collecting.

Genus **CORYNOCORIS** Mayr.

C. typhæus Fabricius.

Ft. Montgomery, N. J., July 27; Mosholu, N. Y., July 26; Staten Id., N. Y. June; Westfield, N. J., July 4 and September 3.

Genus **ARCHIMERUS** Burmeister.

A. calcarator Fabricius.

Forest Pk., L. I., N. Y., June 27; Ft. Lee, N. J., August 8; Ft. Montgomery, N. Y., July 27; Mosholu, N. Y., May 29, June 13 and 22, July 25 and 26 October 4.

This is a very common form, and can be found in the adult practically through the year.

Genus **EUTHOCTA** Mayr.**E. galeator** Fabricius.

Mosholu, N. Y., September 6; Newfoundland, N. J., July; Staten Id., N. Y., June and September.

This is of rather infrequent occurrence.

Genus **METAPODIUS** Westwood.**M. terminalis** Dallas.

Mosholu, N. Y., September 6; Ramapo, N. Y., May 31; Staten Id., N. Y., May 7 and 8, June 20, September 8.

This also is rather uncommon. In two years' collecting I have secured but one immature adult.

Genus **LEPTOGLOSSUS** Guérin.**L. oppositus** Say.

Staten Id., N. Y., October.

This is the specimen credited to Mr. Davis in the N. J. List, and as it is the only one I have seen from this vicinity, it would seem to be quite rare.

Genus **ANASA** Amyot & Serville.**A. tristis** DeGeer

Jamesburg, N. J., June 22.

I have taken none of this species, and Mr. Davis only the one as above, possibly because neither of us frequents squash vines.

Genus **ALYDUS** Fabricius.

This is the most abundant genus of the family; both as to species and individuals. They are ordinarily to be found on bush-clover in the flowering season actively flying about. They make a rather loud noise with the wings, and in their flight resemble somewhat Hymenopterous insects. *Alydus calcarator* Fabr. (= *calcaratus* Uhl., not Linné), mentioned in the N. J. List, has been shown by Prof. A. L. Montandon ("Notes on American Hem. Het.," Proc. U. S. N. M., Vol. XVI, pp. 45-52, 1893) to be strictly European, and not to occur on this continent. The form identified with this he described as new under the name *Alydus conspersus* Mont.

A. eurinus Say.

Forest Pk., L. I., N. Y., June 27; Hewitt, N. J., July; Jamesburg, N. J., July 5 and August 31; Mosholu, N. Y., May 29, June 20, 22 and 28, July 25, August 8, October 18; Newfoundland, N. J., September; Staten Id., N. Y., June 12, August 2, September 6, 8 and 20; Van Cortlandt Pk., N. Y. City, August 15 and September 12; Westfield, N. J., August 7 and 13.

This is very common and abundant.

A. pilosulus Herrich-Schaeffer.

Forest Pk., L. I., N. Y., June 27; Brookville, N. J., July; Jamesburg, N. J., June; Mosholu, N. Y., June 22 and 28, July 19; Newfoundland, N. J., September; Van Cortlandt Pk., N. Y. City, June 6, August 15, September 12; Westfield, N. J., July 9 and September 5.

This form also is common, and occurs with the preceding in similar situations.

A. quinquespinosus Say.

Ft. Montgomery, N. Y., July 27; Hewitt, N. J., July; Jamesburg, N. J., August 31; Mosholu, N. Y., June 13 and 20, July 12 and 25, August 8 and 23; Palisades, N. J., August 22; Staten Id., N. Y., September 8 and 10, August 31.

This species is taken with the two preceding, but is not as abundant.

A. conspersus Montandon.

Newfoundland, N. J., September, 1899.

I have seen only this one specimen, determined by me, in the collection of Mr. Davis, and have taken none myself.

Genus HARMOSTES Burmeister.

H. reflexulus Stal.

Cold Spring Harbor, N. Y., July 28; Ft. Montgomery, N. Y., July 26; Ramapo, N. Y., May 31; Lakehurst, N. J., September 5; Mosholu, N. Y., August 4, 7, 9 and 15, September 13; Westfield, N. J., July 9 and August 13.

This is quite common.

Genus CORIZUS Fallen.

C. lateralis Say.

Jamesburg, N. J., July 5; Lakehurst, N. J., May 26 and July 12; Newfoundland, N. J., May; Mosholu, N. Y., July 26 and August 8; Van Cortlandt Pk., N. Y. City, September 1 and 13.

This is another common form.

Family BERYTIDÆ.

Genus NEIDES Latreille.

N. muticus Say.

Ft. Montgomery, N. Y., July 26.

Genus JALYSUS Stal.

J. spinosus Say.

New York City, October 21; Westfield, N. J., July 2.

The first specimen is of interest, because it was captured in the window of one of the tall Broadway buildings, about 120 feet above the street.

Family PYRRHOCORIDÆ.

Genus LARGUS Hahn.

L. succinctus Linnæus.

Lakehurst, N. Y., May 25 and September 19. (Davis.)

This Hemipteron is very common in Lakehurst from May to September or later.

Family ARADIDÆ.

In this family I have not yet succeeded in collecting many specimens personally, and for the local material in my collection, I am indebted to the kindness of Mr.

Davis, who has generously filled gaps in my series, and therefore, most records belong to him. All the insects in this family from which the records credited by Prof. Smith to Mr. Davis have been made, have passed under my eyes, and I make the comments necessary in their proper place.

Genus **ARADUS** Fabricius.

A. æqualis Say.

W. Hebron, N. Y., June.

A. robustus Uhler.

Ft. Montgomery, N. Y., May 31.

A. similis Say.

Staten Id., N. Y., April 4.

A. acutus Say.

Lakehurst, N. J., April 15.

The two last named species, Prof. Smith has put in his list on the authority of Prof. Uhler's Check List, and as far as known to me, these are the first actual records of captures from the region treated of by Dr. Smith.

A. cinnameus Panzer.

Lakehurst, N. J., May 1 and 27; Staten Id., N. Y., April 10. (This is the specimen named in Smith's List.)

This form is very abundant in Lakehurst, on the pines, where Mr. Davis and I have taken it by beating, at different times. It occurs in three forms, wingless, with partly developed wings, and I have met with one fully winged individual.

A. niger Stal.

Lakehurst, April 14.

This is another of Mr. Davis' fortunate captures, as it is a rather rare insect. This is an addition to the New Jersey list.

A. lugubris Fallen.

Staten Id.

This is the specimen recorded by Dr. Smith in his list. In his enumeration he gives this species twice, the other record being under the synonym *A. rectus* Say.

A. sp.

Staten Id., April 10.

This is the species given in the N. J. list as *A. robustus* Uhl., which it certainly is not, as it does not agree with Uhler's original description.

Genus **NEUROCTENUS** Stal.

N. simplex Uhler.

Jamesburg, N. J., June 22; Lakehurst, N. J., July 12 and 19; Westfield, N. J., June 19 and September 4.

This species is recorded twice by Dr. Smith, the other time under the genus *Brachyrhynchus*, under which Uhler originally described it.

Genus ANEURUS Curtis.

A. politus Say.

Staten Id., June 26.

A. septentrionalis Walker.

Perth Amboy, N. J., May 31; Staten Id., May 12; Westfield, N. J., August 14 and September 4.

This species and the preceding are new records from the area under discussion. The latter species appeared in the New Jersey list as *Brachyrhynchus simplex* Uhl.

Family PHYMATIDÆ.

Genus PHYMATA Latreille.

P. erosa Linnæus (= *P. wolffii* Stal).

Lakehurst, N. J., July 29 and August 12; Singac, N. J., September; Staten Id., N. Y., April 9, August 2, 8 and 31, September 26, October 3 and 5; W. Hebron, N. Y., August; Westfield, N. J., July 30 and August 21.

P. sp.

Ramapo, N. Y., May 16.

One specimen only. This is a small species, about 6 mm. long, and entirely unlike the preceding in the shape of pronotum and dilated abdomen. In the absence of Dr. Handlirsch's monograph, I do not care to pronounce positively on its specific position.

Family HYDROMETRIDÆ.

Genus HYDROMETRA Latreille (— *Limnobates* Burmeister).*H. martini* Kirkaldy (= *H. lineata* Say).

Staten Id., May 7 and 16, April 11 (Davis), September 26; Van Cortlandt Pk., N. Y. City, April 11 and July 4; Westfield, N. J., June 19, July 3 and 9, September 11; Rahway R., Cranford, N. J., August 27.

American entomologists, following Burmeister and Stal, have always called this genus *Limnobates* and the family *Limnobatidæ*. Dr. Burmeister's facility for changing names has given rise to great confusion in this respect, since the more recent European specialists (Montandon, Horvath, Kirkaldy, Puton, et al.) have correctly appreciated the synonymy, and have shown that Latreille founded the genus on *Hydrometra stagnorum* Linné, and that the family is therefore Hydrometridæ, and the genus *Hydrometra*. I do not follow them in putting in the Gerridæ and Veliidæ with it, for reasons not necessary to go into in detail, and consider these as separate families. The specific name, as Kirkaldy points out* cannot stand, as it is preoccupied by *H. lineata* Eschsch., from Manila, so he has changed it to *martini*.

H. martini is of retiring habits. In Staten Id., at the same pond, or rather, marsh, Mr. Davis and I have found it in numbers. We have taken together at least 150 specimens and let as many more escape. The females seem to be the more abundant in numbers. In all these, we have met with but two winged individuals,

* The Entomologist, June, 1900, p. 176.

both male; all the others being completely apterous. One specimen was taken by Mr. Davis in a plowed field, some distance from water. This Hemipteron overwinters in the adult form and begins oviposition early in May. How late it may continue, I am unable to say, as I have two females in an aquarium at this writing (July 15), and they are still ovipositing. The females recently arrived at the adult stage, which they do some time in early July from the spring ova, also oviposit at this time of year, so that it is quite possible that they are double brooded, the more so that the entire period of development from the ovum to the adult appears to take but little over six weeks, the moults being very rapid. I feed them flies—a staple breakfast food, with insects I rear to which they take kindly, fastening their long rostra into the insect even before it ceases to struggle. It seems immaterial, however, that their prey should be fresh, as they appear to feed on dead insects as much as two or three days old. They *run* on the surface of the water with considerable swiftness, exactly as if they were on a solid surface.

Family GERRIDÆ.

In this family, nearly all of Stål's different genera become subgenera, according to Kirkaldy, who writes me that they are connected by intermediate forms, and in deference to his exhaustive knowledge of the subject, I so consider them in the following, regarding them as subgenera of the genus *Gerris*.

Genus GERRIS Latreille.

G. (*Hygrotrechus* Stal) *remigis* Say.

Lakehurst, N. J., May 30; Central Park, N. Y. City, April 11; Mosholu, N. Y., May 4 and October 1; Putnam Co., N. Y., September 5; Staten Id., N. Y., March 29; Van Cortlandt Pk., N. Y. City, July 4; Rahway R., Cranford, N. J., August 6 and 20; Westfield, N. J., July 4 and 16, August 11.

This is very abundant in running and sometimes on still waters, from early spring, as soon as the ice melts, till late fall. Winged individuals are rather rare.

G. (*Hygrotrechus*) *conformis* Uhler.

Putnam Co., N. Y., September 5; Rahway R., Cranford, N. J., August 6.

I have have taken only the two specimens recorded, both winged individuals.

G. (*Limnotrechus* Stal) *marginatus* Say.

Bronx, N. Y. City, September 30; Central Park, N. Y. City, March 22; Ft. Lee Dist., N. J., July 4 and 18, October 10; Lakehurst, N. J., May 23, 25 and 30; Staten Id., N. Y., March 29, May 7, August 16; Putnam Co., N. Y., September 5; Van Cortlandt Pk., N. Y. City, April 18 and 15, June 6, September 19; October 1; Rahway R., Cranford, N. J., August 8.

This is very common on still waters. I have found it especially abundant at Van Cortlandt in the early spring, on the lake, where it keeps close to the shore. It occurs in three forms, but I have rarely taken the wingless, the fully winged being the most common.

G. (*Limnotrechus*) *sulcatus* Uhler.

Van Cortlandt Pk., N. Y., October 1.

One specimen only taken.

G. (*Limnotrechus*) *canaliculatus* Say.

Central Park, N. Y. City, March 22; Palisades, N. J., April 19; Putnam Co., N. Y., September 5; Staten Id., N. Y., May 7; Van Cortlandt Pk., N. Y. City, March 28, April 25 and October 1; Westfield, N. J., June 20, August 13, September 9; Rahway R., Cranford, N. J., August 6 and 20.

This differs from the preceding in its greater slenderness and longer and more slender antennae and legs. It is quite rare and is found in the three forms. However, at Echo Lake I took quite a number in a little dark cove full of drift and twigs, among which they were hiding. The two last-named species are additional to the N. J. List.

G. (*Limnopus* Stal.) *rufoscutellatus* Latreille.

Ft. Lee Dist., N. Y., April 19, May 9, July 18, August 9, September 7, October 10; Putnam Co., N. Y., September 5; Van Cortlandt Pk., N. Y. City, June 6; Westfield, N. J., July 4.

This abounds on the surface of the rock pools in the Palisades, where I have found it only in the macropterous form.

Genus *TREPOBATES* Uhler (= *Stephania* B. White).

***T. pictus* Herrich-Schaeffer.**

Lakehurst, N. J., October 18 (Davis); Lake Mahopac, N. Y., September 5; Echo Lake, Westfield, N. J., September 2.

The specimen from Lake Mahopac was taken among a great number of *Metrobates hesperius* Uhl. At Echo Lake, however, it occurred in swarms, in several stages, near the water's edge, in company with *Rheumatobates rileyi*. Not heretofore recorded from New Jersey.

Genus *RHEUMATOBATES* Bergroth.

This odd and interesting genus, in which the males are distinguished by their peculiarly formed prehensile antennae, was discovered a number of years ago by Dr. J. L. Zabriskie, in Long Island. It has not since, I believe, been recorded from this vicinity.

***R. rileyi* Bergroth.**

Echo Lake, Westfield, N. J., September 2; Rahway R., Cranford, N. J., August 6, 20 and 27.

This little bug is extraordinarily abundant in both localities, more especially on the still waters of Echo Lake. On the river, it hugs the shores, and seeks the quiet waters of little coves. It was taken in several stages at both localities. Only one winged specimen was found, a male *in cop.*, out of hundreds taken.

Genus *METROBATES* Uhler.

***M. hesperius* Uhler.**

Lake Mahopac, N. Y., September 5.

This insect is exceedingly abundant on the lake, where myriads congregate, forming large black patches on the water near the shores.

Family VELIIDÆ.

Genus MICROVELIA Westwood.

M. americana Uhler (=*Hebrus americanus* Uhler).

Central Park, N. Y. City, March 22; Ft. Lee Dist., N. J., May 28 and September 7; Bronx, N. Y. City, September 30; Staten Id., N. Y., March 29; Rahway R., Cranford, N. J., August 6 and 20; Westfield, N. J., July 4, 16, 30, August 13, September 2.

I have placed this insect here, as it is evidently a *Microvelia* and not a true *Hebrus*. The generic characters do not agree with those given for the latter genus by Amyot & Serville. The Hemipteron is extraordinarily abundant under the banks of a little stream near Leonia, and this spring I found it on another little stream at Fort Lee. It appears to prefer running water. Out of a long series I obtained only one fully winged individual. In the N. J. List, Prof. Smith gives it from "Atlantic States" fide Uhler. In another little stream in Westfield, in a little bayed-in place and under the overhanging banks, took several more winged individuals. They were abundant in all the places cited, and rest usually on the shore or on floating logs at the water's edge, onto which they run on being alarmed, returning immediately to the shore.

M. pulchella Westwood.

Staten Id., May 5 and August 16. Ft. Lee, N. Y., July 18.

I have taken but few specimens of this form, two of those taken this spring on Staten Id. being winged individuals. This species is lacustrine, and to be found running on *Lemna*.

I have also taken what are apparently three other species of the genus, one near *M. americana* Uhl., and the other two near *M. pulchella* Westw., but have not been able to determine them, due to absence of literature.

Genus MESOVELIA Mulsant.

M. mulsanti White (=*M. bisignata* Uhler).*

Ft. Lee Dist., N. J., August 20 and 22, September 7 and 18; Putnam Co., N. Y., September 5; Staten Id., N. Y., August 16 and September 26; Van Cortlandt Pk., N. Y. City, August 15, September 19 and October 1; Westfield, N. J., June 26, July 3 and 9, September 2; Rahway R., Cranford, N. J., August 6 and 27.

This is very abundant on *Lemna*, in still waters. I have taken it in the three forms, fully winged, brachipterous, and apterous, the last being the most abundant. This is a most widespread bug. It is recorded from the greater part of the continent, the Antilles, and as far down as the Amazon River. In the Rahway River at Cranford and in general in that district, the winged form is much more abundant than I have seen it elsewhere.

Genus RHAGOVELIA Mayr.

R. obesa Uhler.

Lakehurst, N. J., July 11, September 5 and October 18; Rahway R., Cranford, N. J., August 6, 20 and 27.

* Champion, Biol. C. A., Rynychota, Mem. Het., II, p. 123.

It is abundant in Lakehurst, where Mr. Davis took it. Very abundant in riffles and rapid portions of the current on the Rahway R., where it can be seen swimming against the stream in zigzags. Winged individuals were far from uncommon and generally congregated in the slackwater behind rocks projecting above the surface. I took them principally in these situations.

Family GELASTODORIDÆ.

(= *Galgulidæ olim.*)

A few words in explanation of this change are not amiss. The old familiar "*Galgulus*" Latr. has for many years been preoccupied in *Aves*, and since under the rule of priority it cannot be used, Kirkaldy has proposed the name *Gelastocoris* for the typical genus, thus changing the family name as well. This change has been adopted by authorities, notably by Champion in *Biologia Centrali-Americana*.

Genus PELOGONUS Latreille.

P. americanus Uhler.

Staten Id. (Davis), Mosholu, N. Y., May 29; Westfield, N. J., July 4 and 7.

I have seen few specimens of this interesting little species, which links the Saldidæ on the one hand with the Galgulidæ on the other. The specimen from Staten Island is the one recorded in Dr. Smith's List.

Genus GELASTOCORIS Kirkaldy (= *Galgulus* Latr., preocc.*)

G. oculatus Fabricius.

Staten Id. (Davis). I have not seen this insect in this vicinity, and the only specimen I am acquainted with from our region is the one in Mr. Davis' collection, which is also the one recorded by Prof. Smith.

Family NAUCORIDÆ.

Genus PELOCORIS Stal.

P. femoratus de Beauvois.

Delair, N. J.; Staten Id., N. Y., May 7 and 16, September 26, October 25; Van Cortlandt Pk., N. Y. City, March 11 and 18, May 2, June 6, July 27; Rahway R., Cranford, N. J., August 27.

This is a widespread species, ranging from Massachusetts down through Mexico and into South America. It is abundant wherever present.

Family BELOSTOMIDÆ.

In the "Bulletin de la Société des Sciences," of Bucarest, Rumania, year IX, nos. 2 and 3, Prof. Montandon clears up the generic synonymy of this family, and shows that the type of *Belostoma* Latr. is a *Zaitha* auctt., and therefore drops the latter generic name for the prior one, whence *Zaitha* is now known as *Belostoma*; the old *Belostoma* not standing, he has proposed the name of Stal's subgenus *Amorgius* in its place. I have here accepted his conclusions and employ his nomenclature.

* Kirkaldy, The Entomologist, 1897, p. 258.

Genus **BELOSTOMA** Latreille (= *Zaitha* auct.).**B. flumineum** Say.

Bronx, N. Y. City, September 9; Forest Pk., L. I., N. Y., November 7; Pali-sades, N. J., August 20 and 22, September 7; Staten Id., N. Y., August 16, September 8 and 26, October 24 and 25; Van Cortlandt Pk., N. Y. City, March 25; Rahway R., Cranford, N. J., August 6 and 20.

This is by far the most abundant member of the family, or at least, the most easily taken. It can be found in almost any muddy pond with abundant vegetation.

B. testaceum Leidy.

Delair, N. J. This is additional to the N. J. List, and was sent to me by Mr. W. P. Seal among a lot of aquatics he very kindly favored me with.

B. sp.

Delair, N. J. Van Cortlandt Pk., N. Y. City, March 28. This form I have found now and then, and have taken about three or four specimens all told. It is smaller and rounder than either of the two preceding, and I cannot satisfactorily identify it.

Genus **AMORGIUS** Stal (= *Belostoma* auct.).**A. americanum** Leidy.

Ft. Lee, N. J., April and September 18.

A. obscurum Dufour.

Ft. Lee, N. J., April and September 18. Mt. Vernon, N. Y., June 4.

This name has been reduced to synonymy, and so appears in Prof. Uhler's "Check List." Prof. Montandon, however, rehabilitates it and shows that it represents undeniably a good species.* This and the preceding I have taken in the last nymphal stage and allowed to come to maturity in my aquaria. This is the only way I have been able to get them, and except at electric lights, I doubt that it is easy to capture swift swimmers. The nymphs of both species differ from the adults, in addition to the lack of wings and general undeveloped condition, in having the anterior tarsi biungulate.

Genus **BENACUS** Stal.**B. griseus** Say.

New York City, July 22.

This is the only specimen I have taken of this insect. I found it flapping its wings under an electric light. Mr. Davis, however, has a good series from Staten Id. It appears to be much more abundant than *Amorgius*.

Family **NEPIDÆ**.Genus **NEPA** Fabricius.**N. apiculata** Uhler.

Staten Id., N. Y. (Davis). Mt. Vernon, N. Y.; Westfield, N. J., July 16 and August 13.

* "Hem. Het. Exotiques, Notes et Descr., II, Fam. Belostomidæ," Ann. Soc. Ent. Belg. t., XI., pp. 508-520, 1896.

Although I have diligently sought this insect, I have not yet succeeded in taking the adult. I have seen only two specimens, the ones recorded above. This would appear to be very rare hereabout.

Genus *RANATRA* Fabricius.

R. fusca de Beauvois.

Central Park, New York City. This is commonly given in the text-books as the common species in the East. I have, however, taken only the one specimen recorded, and have seen no others from this vicinity.

R. quadridentata Stal.

Central Park, New York City, March 12; Forest Pk., L. I., November 7; Ft. Lee, N. J., August 20 and 22, September 7 and 18; Putnam Co., N. Y., September 5; Van Cortlandt Pk., N. Y. City, March 25; Rahway R., Cranford, N. J., August 27.

This form is by far the most abundant locally, as it seems to be throughout the United States, to judge from material received from many quarters.

R. kirkaldyi Bueno. (Ms.).

Putnam Co., N. Y., September 5.

This is a very small species, with shorter air-tubes in proportion to the body than either of the preceding. It will be described by me in a paper in preparation. I have taken only one specimen of this, but have a large series sent in by a collector.

Family NOTONECTIDÆ.

Genus *NOTONECTA* Linnæus

N. undulata Say.

Central Park, New York City, April 30 and March 11 and 12; Delair, N. J., September 1; Bronx, New York City, September 9; Forest Park, R. I., November 7; Palisades, N. J., March 2 and 7, April 19, May 1 and 9, July 18, August 9, September 7 and October 10; Putnam Co., N. Y., September 5; Staten Id., N. Y., August 16, September 26 and October 25; Rahway R., Cranford, N. J., August 6 and 27; Ft. Lee Dist., N. J., September 18.

This is by far the most abundant form throughout the United States and locally. It occurs in common with the other species of the genus, from the time the ice melts in spring until the late autumn.

N. variabilis Fieber.

Central Park, New York City, April 12; Delair, N. J., Lakehurst, N. J., May 23 and 26; Palisades, N. J., March 7, May 9, July 18, August 22, September 7; Putnam Co., N. Y., September 5; Staten Id., N. Y., May 7 and 16, August 16, September 26; Van Cortlandt Park, New York City, March 28, April 11, 18 and 25, June 6, July 4 and 25, August 8, November 4, and October 1; Rahway R., Cranford, N. J., August 20 and 27; Westfield, N. J., July 4, 9 and 16; Fort Lee Dist., N. J., September 18.

This is a good species, although Prof. Uhler has long been of the opinion that it is conspecific with the preceding species. It also is very abundant where found. It

is practically the only species to be taken at Van Cortlandt. Very rarely single specimens are found in company with *Notonecta undulata*, and this is also true of the occurrence of the latter with the former. It is this insect that is recorded in Dr. Smith's list as *N. americana*, a bug that occurs only in the southern part of the country. *N. variabilis* is omitted in the list mentioned.

N. uhleri Kirkaldy.

Palisades, N. J., May 5; Putnam Co., N. Y., September 5; Van Cortlandt Park, New York City, April 11, 18 and 25; Fort Lee Dist., N. J., May 14.

This extremely beautiful crimson and black species, mentioned in my first notes on this family * as likely to occur in this vicinity, I myself had the pleasure of finding at Van Cortlandt Park, making the first published record of the species in this State, and indeed, the first mention of it outside of the type localities. My catch in the localities mentioned constitutes the majority of the specimens in collections. This is a very rare bug, but very readily separable from any other American species.

N. irrorata Uhler.

Delair, N. J., Bronx, New York City, September 30; Forest Park, R. I., November 7; Palisades, N. J., July 18, August 9 and 23, September 7 and 23, October 10; Putnam Co., N. Y., September 5; Staten Id., N. Y., August 2 and October 2; Van Cortlandt Park, New York City, April 11, 18 and 25, June 6 and July 25; Rahway R., Cranford, N. J., August 6, 20 and 27; Fort Lee Dist., N. J., September 18 and October 22.

This bug is not uncommon in dark waters, hiding among stems and roots growing in the water.

N. insulata Kirby.

Delair, N. J.; Palisades, N. J., May 1, August 9 and 23; Staten Id., N. Y., September 26.

This species is not very abundant. It may at times be found in company with *N. irrorata*, but ordinarily it seems to seek clear cold pools, where the water is deep

Genus ANISOPS Spinola.

A. elegans Fieber.

Palisades, N. J., September 7; Staten Id., September 26; Van Cortlandt Park, New York City, July 25; Rahway R., Cranford, N. J., August 27; Fort Lee Dist., N. J., September 18 and October 22.

This is rather rare in this vicinity and may be found floating in the shallower waters of ponds, near the edges, among the weeds.

A. sp. (? albidus Champion).

Delair, N. J.; Staten Island, N. Y., September 8 and 26, October 25, November 11.

This is the species erroneously identified by me as *Anisops platycnemis* in my paper cited above. At the time this identification was made, I did not possess Fieber's

* "Notonectidae of the Vicinity of New York," Journ. N. Y. Ent. Soc., Vol. X, no. 4, December, 1902.

"Rhynchotographiæen," where the species in question is described. *Anisops platynemis* is small, about 5 mm. long, while this bug is 7 to 8 mm., and, according to Fieber's description, approaches the preceding. This species is the most abundant in this vicinity.

Genus *PLEA* Leach.

P. striola Fieber.

Staten Id., N. Y., May 7 and 16, and September 26; Van Cortlandt Park, New York City, April 11, 18 and 25, September 13 and 19; Rahway R., Cranford, N. J., August 27; Westfield, N. J., July 16 and August 13.

This small bug is abundant from early spring until late fall, hiding among the fine-leaved aquatic plants and algae, where it swims about in quest of its food, crawling on the stems and among the matted fibers. As far as I have been able to observe, this Hemipteron is a vegetable feeder.

In conclusion, for the information of those of my readers who have not collected about New York, I will give a few notes on the localities. Central Park, of course, is the well-known pleasure ground of New York City, right in the heart of it. There is a little lake at about 100th street and the west side of the Park, where I have taken most of the aquatics for which this locality is given. Van Cortlandt Park is also in the city, toward Yonkers, on the line of the N. Y. and Putnam R. R. It is far more wild than Central Park, and in the lake there I have made very good catches. This was drained this year, unfortunately, to make some "improvements" and the insects are gone. Land bugs I have taken along the edges of the lake, in the bushes and grasses growing between it and the railroad tracks, and also in a sandy spot between the tracks at a fork of the railroad. Mosholu is about a couple of miles north of Van Cortlandt Park, and in fact, the collecting grounds form a part of this park. The localities where collecting is done by the New Yorkers are a meadow about a quarter of a mile west of the station and the woods on the hillside and those through which a little stream runs on the other side. Staten Id., means the entire island, in its ponds and woods and fields. Palisades, N. J., stands for the region around Fort Lee, Grantwood, Edgemere, and the other small towns that are springing up, including also Leonia. Bronx is the northern part of New York City, which is still more or less of a wilderness, but rapidly building up.